Notice of Allowability	Application No.	Applicant(s)
	10/553,874	IKEDA ET AL.
	Examiner	Art Unit
	Jurie Yun	2882
The MAILING DATE of this communication apper All claims being allowable, PROSECUTION ON THE MERITS IS herewith (or previously mailed), a Notice of Allowance (PTOL-85) NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT R of the Office or upon petition by the applicant. See 37 CFR 1.313	(OR REMAINS) CLOSED in this or other appropriate communical IGHTS. This application is subjection.	s application. If not included ation will be mailed in due course. THIS
1. This communication is responsive to <u>amendment filed 6/13/07</u> .		
2. The allowed claim(s) is/are <u>1 and 3-11</u> .		
3. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).		
a) ⊠ All b) ☐ Some* c) ☐ None of the:		
1. Certified copies of the priority documents have been received.		
2. Certified copies of the priority documents have been received in Application No		
3. Copies of the certified copies of the priority documents have been received in this national stage application from the		
International Bureau (PCT Rule 17.2(a)).		
* Certified copies not received:		
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.		
4. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.		
5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.		
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached		
1) 🗌 hereto or 2) 🔲 to Paper No./Mail Date		
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date		
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).		
6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.		
Attachment(s)	5. Notice of Inform	al Patont Application
 Notice of References Cited (PTO-892) Notice of Draftperson's Patent Drawing Review (PTO-948) 	6. ☐ Interview Summ	• •
2. Notice of Draitperson's Patent Drawing Neview (F10-940)	Paper No./Mail	Date
 Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 	7. 🛛 Examiner's Ame	endment/Comment
Examiner's Comment Regarding Requirement for Deposit of Biological Material	8. 🛛 Examiner's Stat	ement of Reasons for Allowance
	9.	
i.		

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DETAILED ACTION

The amendment filed 6/13/07 has been entered.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Melvin Kraus on 6/27/07.

The application has been amended as follows:

In claim 1, line 20, delete "ends in the" and replace with --ends in a--

In claim 1, line 28, delete "a attenuation" and replace with --an attenuation--

Allowable Subject Matter

Claims 1 and 3-11 are allowed.

The following is an examiner's statement of reasons for allowance: Prior art fails to disclose an X-ray image diagnostic apparatus comprising storage means for storing plural sets of residual image data that attenuate with time, acquired in advance from X-ray images in X-ray image acquisition modes from the X-ray flat panel detector before an actual measurement, in correspondence with the X-ray image acquisition modes; an image memory that stores one frame of the residual image data, which is obtained in a fluoroscopic mode after X-ray irradiation ends in a radiographic mode and before X-ray irradiation starts by switching to the fluoroscopic mode, from the X-ray flat panel

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detector; a computing unit that reads out quantities of attenuation of the first and subsequent frames of the residual image data in response to time on a basis of one frame of the residual image data stored in the image memory, and subtracts the read quantities of attenuation of the residual image data from a signal outputted from the X-ray flat panel detector; and a control portion that controls the image memory, an attenuation quantity storage portion, and the computing unit on a basis of respective signals, including control signals for each of the X-ray image acquisition modes including a radiographic signal and a fluoroscopic signal, and an image synchronizing signal to enable a display on the display means, as claimed in claim 1. Claims 3-7 are allowed due to their dependency on claim 1.

Prior art fails to disclose an X-ray image diagnostic apparatus, characterized by comprising plural image memories, plural attenuation quantity storage portions, a weight addition quantity storage portion that reads out quantities of attenuation of the first and subsequent frames of the residual image data in response to a time on the basis of one frame of the residual image data stored in each of the image memories, subjects the read quantities of attenuation of residual images to weighting addition depending on magnitude of a quantity of remaining residual images, and stores weight addition quantities; a computing unit that reads out the weight addition quantities stored in the weight addition quantity storage portion in response to a time, and subtracts the read weight addition quantities from a signal outputted from the X-ray flat panel detector; and a control portion that controls the image memories, the attenuation quantity storage portions, and the weight addition quantity storage portion on the basis of respective

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signals, including control signals for each of the X-ray image acquisition modes including a radiographic signal and a fluoroscopic signal, and an image synchronizing signal to enable a display on the display means, as claimed in claim 8.

Prior art fails to disclose an X-ray image diagnostic apparatus, characterized by comprising plural attenuation quantity storage portions, each of which stores quantities of attenuation of first and subsequent frames of the residual image data on the basis of one frame from the image memory switched by the first switch, in correspondence with the read pixel matrix of the X-ray flat panel detector; a second switch that reads out a quantity of attenuation of a residual image stored in the attenuation quantity storage portions in response to a time, and makes a switch to the read quantity of attenuation of the residual image data; a computing unit that subtracts the quantity of attenuation of the residual image data switched by the second switch from a signal outputted from the X-ray flat panel detector; and a control portion that controls the image memory, the attenuation quantity storage portions, and the first and second switches on the basis of respective signals, including control signals for each of the X-ray image acquisition modes including a radiographic signal and a fluoroscopic signal, and an image synchronizing signal to enable a display on the display means, as claimed in claim 9.

Prior art fails to disclose an X-ray image diagnostic apparatus, characterized by comprising plural attenuation quantity storage portions, each of which stores quantities of attenuation of first and subsequent frames of the residual image data on the basis of one frame from the image memory switched by the first switch, in correspondence with the single radiographic mode and the continuous radiographic mode; a second switch

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that reads out a quantity of attenuation of the residual image stored in the attenuation quantity storage portions in response to a time depending on the single radiographic mode or the continuous radiographic mode, and makes a switch to the read quantity of attenuation of the residual image; a computing unit that subtracts the quantity of attenuation of the residual image switched by the second switch from a signal outputted from the X-ray flat panel detector; and a control portion that controls the image memory, the attenuation quantity storage portions, and the first and second switches on the basis of respective signals, including control signals for each of the X-ray image acquisition modes including a radiographic signal and a fluoroscopic signal, and an image synchronizing signal to enable a display on the display means, as claimed in claim 10. Claim 11 is allowed due to its dependency on claim 10.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jurie Yun whose telephone number is 571 272-2497. The examiner can normally be reached on Monday-Friday 8:30-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

June 26, 2007